

REMARKS

By this amendment, claims 1-3, 5-20, and 22-29 are pending, in which claims 4 and 21 are canceled without prejudice or disclaimer, and claims 1, 8, 10, 13, 18, and 27 are currently amended. The amendment incorporates features found in the various dependent claims (e.g., claims 4 and 21), and thus, do not raise new issues requiring further search. No new matter is introduced.

The final Office Action mailed October 2, 2003 rejected claims 1-29 as obvious under 35 U.S.C. § 103 based on *Simeonidou et al.* (US 6,249,620) in view of commonly-assigned *Liu* (US 5,914,798).

To advance prosecution, Applicant has amended independent claims 1, 10, 18, and 27 to recite features present in dependent claims 4 and 21 (both now canceled). Namely, claims 1 and 18 recite “selectively receiving alarm signals from at least one of the first line terminating equipment and the second line terminating equipment via a respective one of binary alarm interfaces coupling the first line terminating equipment and the second line terminating equipment.” Amended claim 10 recites “a network management module configured to receive selectively an alarm signal from the line terminating equipment via the binary alarm interface.” Claim 27 now includes the feature of “means for monitoring a plurality of physical connections between a first line terminating equipment and a second line terminating equipment of the submarine cable network, the monitoring means including binary interfaces coupled the first line terminating equipment and the second line terminating equipment” and “means for selectively receiving alarm signals from the binary alarm interfaces of the monitoring means.”

In support of its rejection of dependent claim 4, the Office Action, on page 3, acknowledges that “Simeonidou et al [sic] do not specifically disclose alarm signals and interfacing with the first line terminating equipment (i.e., nodes) and the second line terminating

equipment (i.e., nodes) using binary alarm interfaces.” Consequently, the Office Action relies on *Liu* for “the use of alarm signal.” Applicant notes that the claim language require greater specificity; in particular, the claims recite “binary alarm interfaces.” The Office Action simply ignores this feature, only providing a conclusion that itself is devoid of mention of the use of binary alarm interface: “[s]ince alarm signal is being transmitted by a faulty node, therefore it would have been obvious to provide interface device for the alarm signal in order to received [sic] and processed [sic] the alarm and identify location of fault.” A binary alarm interface is not, however, just an “interface.”

Applicant’s Specification, paragraphs [24] and [25], makes clear the advantages of binary alarm interfaces, which refer to a means for communicating alarms and status conditions (such as equipment malfunctions, signal degradations, etc.) directly from one network element to another, as opposed to embedding such information in the overhead of a traffic-bearing signal, such as along SONET STM-N interface 112. A binary interface may provide more immediate and dependable communication of alarm and status information, especially if other robustness measures, such as error-tolerant coding schemes, are applied to the binary interface 111, 113. The binary interface 111, 113 yields a faster response time than the usual embedded interface (in the order of microseconds versus milliseconds, for example). The binary interface 111, 113 sends to the switching system controller; in turn, the switching system controller analyzes the fault and refers to the lookup tables in the database 127, 131 rather than the embedded signal analyzing the fault and sending the message (delayed by the analysis time) to the switching system controller. Since the switching system 101, 109 must perform the root cause analysis anyway (fault conditions), the embedded analysis is a redundant event. Given the advantages of the binary interface 111, 113, the protect switching or restoration mechanisms of the system 101, according to one embodiment of the present invention, rely primarily upon direct indications from the

binary interface 111, 113, although such systems may also respond to signal overhead bytes and communications through a network management system.

Liu indeed discloses the use of alarm signals, but does not describe providing alarm signals via binary alarm interfaces particularly in the manner claimed. *Liu* describes that an alarm is generated at the node for each detected error (col. 4: 19-44); however, this reference is silent with respect to the type of interface that is employed in generating the alarm signals.

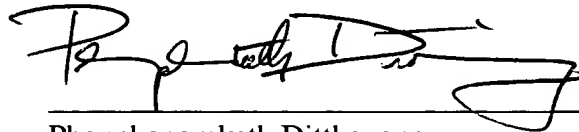
Furthermore, Applicant maintains that the Office Action has not established a *prima facie* case of obviousness. In establishing the requisite motivation, it has been consistently held that both the suggestion and the reasonable expectation of success must stem from the prior art itself, as a whole. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991); *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); *In re Dow Chemical Co.*, 837 F.2d 469, 5 USPQ2d 1529 (Fed. Cir. 1988). The *Simeonidou et al.* system involves a branching unit 7 that strictly manipulates signals in the optical domain to support wavelength or capacity reconfiguration between the trunk 4 and the spur 8 (see FIGs. 1 and 2) in the constrained topology of a submarine network. By contrast, the *Liu* system, unconstrained by factors involved with a submarine network, employs an elaborate network made of an Operation Support System (OSS) 310 in communication with numerous switching nodes 301, 302, and 303. These switching nodes 301, 302, and 303 include both optical and electrical equipment (e.g., optical DXC, MUX, DEMUX) to support network restoration. Given the architectural and operational differences between the *Simeonidou et al.* system and the *Liu* system, Applicant submits that the modifications of the *Simeonidou et al.* branching unit 7 to effect an alarm detection system for network reconfiguration based on the teachings of *Liu* is no trivial engineering feat (particularly if cost is a concern), calling into question the reasonableness of the expectation of success of the proposed modifications.

Therefore, the present application, as amended, overcomes the rejection of record and is in condition for allowance. Favorable consideration is respectfully requested. If any unresolved issues remain, it is respectfully requested that the Examiner telephone the undersigned attorney at (703) 425-8508 so that such issues may be resolved as expeditiously as possible.

Respectfully Submitted,

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Date



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